

Buck (A.H.)

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C. A. H. B.

CASE OF ANGIOMA CAVERNOSUM, SITUATED IN THE EXTERNAL AUDITORY CANAL, AND ATTACHED BY A SLENDER PEDICLE TO THE MANUBRIUM MALLEI.

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REPORTED BY ALBERT H. BUCK, M.D.,

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(PLATE VI.)

George Algerer, æt. 19, mechanic. Admitted to the New York Eye and Ear Infirmary, April 2d, 1870.

History.—When seven years old, patient had some acute sickness, either measles or scarlet fever, after which he began to suffer from earache and a purulent discharge from both ears. Since that time the discharge has continued almost uninterruptedly, and has been accompanied by occasional attacks of earache. Otherwise his health has been tolerably good. There has never been any blood in the discharge, but on one or two occasions he has noticed a little blood on his finger after pushing it rather too violently into the ear. As far back as he can remember he has been troubled with either a ringing, buzzing, or whistling noise in both ears; at certain times the sound was like that of a steam-whistle. Of late the sound in the left ear has been what might be termed a pulsating humming noise; it is continuous, but at

regular intervals, corresponding apparently to the pulse-beat, it becomes louder. Running up-stairs, or any other violent exercise, aggravates very much the noise.

On waking this morning he found his pillow, as he states, covered with blood. The hemorrhage came from the left ear, and continued, in the form of oozing, throughout the entire forenoon. He suffered no pain, and could assign no cause for the occurrence.

Present Condition.—Patient's general condition is good. He can only understand very loud conversation. On the right side a loud-ticking watch cannot be heard at all; on the left he hears it when pressed against the concha. Right meatus half filled with pus, obscuring the field of vision. After its removal the membrana tympani was found to be entirely destroyed, and its place occupied by granulations springing from the internal wall of the tympanum. The short process of the hammer and its apparently shortened handle were yet visible. Left meatus filled with blood, partly clotted. After its removal by syringing, an oblong, dark-colored body, about the size of a small pea, was found lying apparently free on the inferior wall of the meatus. At first sight it was supposed to be a foreign body, or inspissated cerumen. It was only after several vain attempts with the syringe that the small body was discovered to be attached by a long and slender pedicle to the stump of the hammer, which could be seen in the background. Dr. Robert F. Weir, to whom I am indebted for the case, then divided the pedicle with the scissors, after which the growth was readily removed by syringing. No appreciable hemorrhage followed. Ordered insufflation of powdered alum.

April 23d. No discharge from either ear at present. Hearing distance remains the same. The noises previously complained of have ceased. On the left side the yellowish-white stump of the hammer can be seen standing out rather prominently from the upper portion of a

red and slightly granular field. The membrana tympani is entirely gone; no trace can be seen of the former pedicle.

June 25th. Patient returned to-day with the statement that soon after the last visit the noises and discharge both reappeared, and have continued ever since. Right and left meatus are both filled with pus. After a thorough cleansing the appearance of the left ear is found to be the same as described above, with the exception that now a pinkish vascular teat hangs from the stump of the hammer. Its bright color is in decided contrast with the granulations surrounding it on almost every side. Ordered instillation twice daily of

R. Acidi tannici..... ʒ i.
Glycerinæ..... ʒ i. M.

Microscopic Examination.—Immediately after its removal the small growth was placed in a weak solution of chromic acid—the only preservative fluid which happened to be at hand at the time. From this it was transferred to alcohol, and when sufficiently hardened it was ~~mounted~~ ^{embedded} in a mixture of wax and oil, in equal parts. The sections obtained with the razor were first tinged with carmine, and then mounted permanently in Damar varnish. From a study of these sections I am enabled to give the following description:—

The surface of the tumor is covered by a moderately thick fibrous membrane, intimately connected with the tissues beneath it. The central portion is an irregularly-shaped cavity, filled with blood. The remainder of the growth presents everywhere the same appearances, name-

ly, sections of blood-vessels of different sizes and shapes, and a fine intervascular network of connective tissue, containing blood-corpuscles in its meshes. Toward the periphery the vessels are arranged side by side, as if radiating from the centre of the growth. The smallest of these measured mm. 0.024, the largest mm. 0.324. Immediately beneath the capsule the walls of some of the vessels measured as much as mm. 0.02 in thickness. No capillaries can be found in any part of the growth. In the neighborhood of the central cavity there are seen sections of what seem to be irregularly-distended veins. In a few instances these can be seen terminating directly in the central cavity; in others, one or more of the radiating vessels can be followed into the large vein. In many of the vessels the calibre is traversed by a network of fine threads of connective tissue, holding blood-corpuscles in its meshes, and differing in no respect from the network located between the vessels (Fig. 2). Where the section is sufficiently thin, a few scattered white corpuscles can be distinguished among the red.

The point of rupture can easily be recognized in some of the middle sections by the presence of a plug of clotted blood extending from the central cavity to the periphery of the tumor (Fig. 1).

In the stump of the pedicle only one large vessel can be distinctly recognized. It becomes forked very soon

after its entrance into the tumor, and one of the branches can be traced directly into the central cavity.

Remarks.—The question which naturally presents itself after an examination of such a vascular growth is: are we to consider it as a form of fibroma rich in blood-vessels, or as a true angioma?

The most recent articles on the subject of aural polypi are those of Kessel and Steudener, published in Vol. 4 of the *Archiv für Ohrenheilkunde*. These writers give the reports of the microscopical examination of 75 aural polypi made by Tröltsch (3), Meissner (5), Förster (5), Billroth (7), Kessel (22), and Steudener (33). Among Kessel's 22 polypi he reports one, "the greater portion of which consisted of blood-vessels and corpuscles. Near the surface the vessels were purely capillary, consisting entirely of nucleated protoplasmic cells. . . . From what has been said above, we must consider this as a coagulum of blood in process of organization. The growth is therefore analagous to the fibrinous blood-polypi which occur in the uterus."

Steudener, speaking of mucous polypi of the ear, says: "In many cases the vessels are found in a state of extreme dilatation, and with extraordinarily thin walls; often at the same time they are so numerous that sections through such polypi remind one of vascular tumors."

These are the only references I can find to aural polyp*i* resembling in the slightest degree the growth which I have attempted to describe above.

Virchow, in his admirable work on tumors, treats the subject of angioma with great clearness and fulness. It is from a careful study of this account, and from the confirmation of Drs. Knapp and Francis Delafield, that I have ventured to classify this growth as a *polypoid angioma cavernosum*.

Virchow defines an angioma to be a tumor composed chiefly of newly-formed vessels, or of vessels in whose walls there are newly-formed elements. He applies the term *cavernosum* to those angiomata which, in the place of capillary blood-vessels, possess blood-spaces. In such growths, he continues, the arteries pour their blood immediately into these spaces, from which it then passes into the veins, and so back into the general circulation.

In the present case we have a distinct polypoid tumor, composed chiefly of blood-vessels and blood-containing spaces. In the centre is a cavity communicating not only with some of the large veins, but also with the blood-spaces; and from it at least one large vein passes into the pedicle. The circulation must probably have taken place after this wise:—From the arteries the blood passed into the spaces of the spongy tissue, and thence either directly into the smaller veins, and so on

into the large vein of the pedicle ; or first into the central cavity, and then into the general circulation.

As the patient was sleeping quietly on the affected side at the time of the hemorrhage, the accident was probably due to causes having their seat within the tumor itself. Pressure, progressive atrophy, and finally rupture, through simple weakness of the tissues to resist the ordinary force of the heart, may safely be assumed as the cause of the accident.

Finally, the reappearance, some six weeks after the operation, of a highly vascularized tissue at the spot previously occupied by the pedicle of the polypus, may be reasonably looked upon as a confirmation of Virchow's view, that an angioma is a true vascular hyperplasia.

EXPLANATION OF DRAWINGS.

FIG. 1.—Section through entire polypus. At *d* can be seen the stump of the pedicle, including in its substance the efferent vein *e*. At *g* the rupture occurred. The central cavity *f* communicates both with the rupture *g* and the vein *e*. For the sake of clearness, the clotted blood, which filled all these spaces, is left out of the drawing. At *c* is represented a separate outgrowth, resembling in its composition the tissue of the main tumor. Sections of blood-vessels can be seen at *b* and elsewhere. The entire mass is surrounded by a capsule *a*. 20 diameters.

FIG. 2.—Section through the spongy tissue of the polypus. At *a* is represented the connective-tissue network, containing in its meshes blood-corpuscles *b*. The white corpuscles, which are more or less tinged with carmine, are drawn at *c*. 300 diameters.

Fig. 1. $\frac{20}{1}$

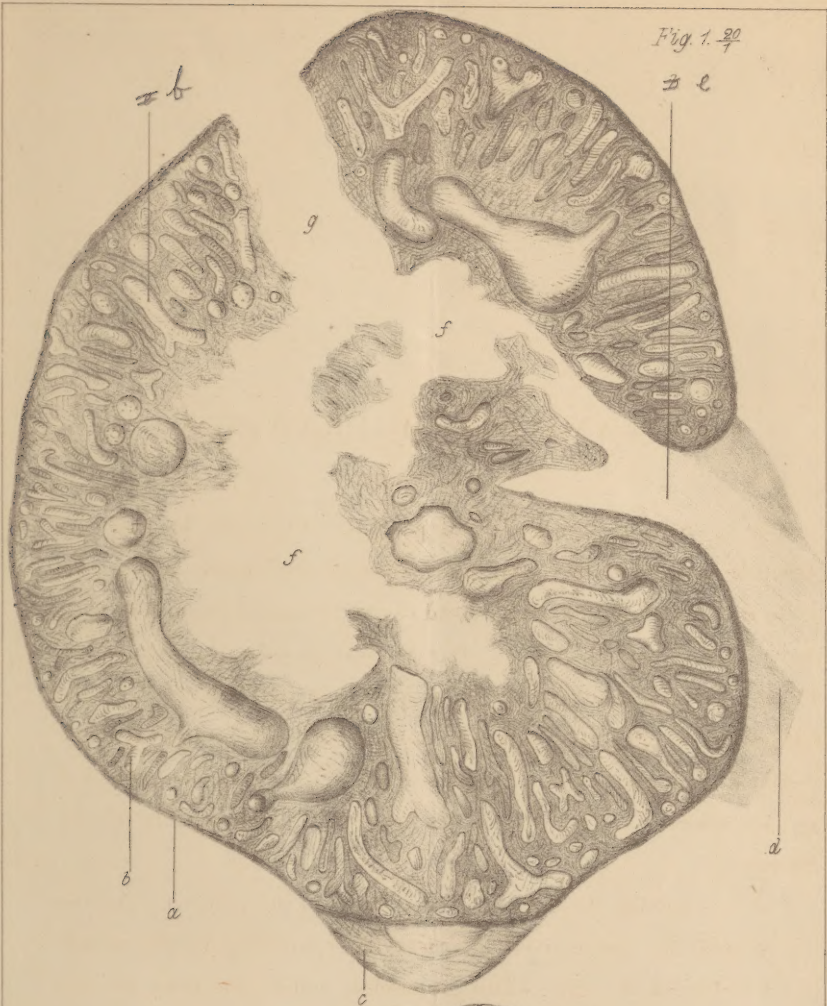
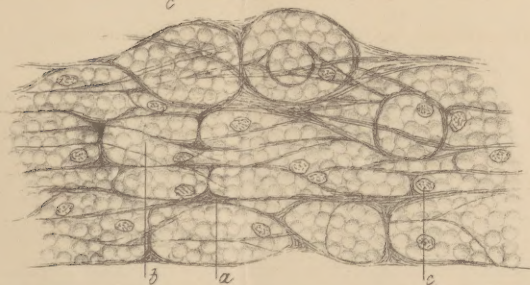


Fig. 2.
 $\frac{300}{1}$



A. H. Buck ad nat. del.

J. Maisonneuve Lith.

